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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/433,730	11/03/99	JAFFE S	33754/JWE/B6

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EXAMINER	
TSE, Y	
ART UNIT	PAPER NUMBER
2634	17

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/433,730	Jaffe et al.
Examiner	**Art Unit**
Young Tse	2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *THREE* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jun 8, 2001*

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-104* is/are pending in the applica

4a) Of the above, claim(s) *1-9 and 19-87* is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *10-18 and 88-104* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☒ The proposed drawing correction filed on *Jun 8, 2001* is: a☒ approved b)☐disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b) ☐ Some* c) ☐None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

Election/Restriction

1. This application contains claims 1-9 and 19-87, drawn to an invention nonelected without traverse in Paper No. 12. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on June 08, 2001 have been approved.

Claim Objections

3. Claim 18 is objected to because of the following informalities: in claim 18, line 3, the phrase "the passband region" appears to read --the passband regions--. See line 8 of claim 12, line 2 of claim 13, and line 3 of claim 17.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to

make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 10-18 and 88-104 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The configurations of claims 10-18 and 88-104 do not correspond to the disclosure of Fig. 1 since Applicants elected the embodiment of Fig. 1 corresponding to claims 10-18 and 88-104. Applicants are requested to point out what block elements shown in Fig. 1 are the first and second nested tracking loops and the third tracking loop, as recited in claims 10, 88, 96, and 101; the first high pass filter and the second low pass filter for a lower or higher cut-off frequency of about one fourth or one half of a sampling frequency, as recited in claims 12-16; the phase/frequency detector and the oscillator circuit, as recited in claim 18; the equivalent filter, the decision directed carrier phase recovery loop, and the maximum likelihood sequence estimation circuit, as recited in claims 88 96, and 1000; the real to imaginary signal converter and the time compensation circuit, as recited in claim 92; and the Hilbert transform filter, as recited in claims 93-95.

Response to Arguments

6. Applicant's arguments filed June 08, 2001 have been fully considered but they are not persuasive.

Applicants argue that the configurations of claims 10-18 and 88-104 do correspond to the elected embodiment of Fig. 1, because in Fig. 1, block 30 is labeled as "Acquisition/Tracking Loops", these loops are shown or incorporated in details of Figs. 4, 5, 7 to 16, and 18-25. Applicants also summarize the invention as the following:

(a) With reference to Fig. 4, in claim 1 (it appears to be claim 10) the first nested tracking loop corresponds to LF Inside 66, DDFS Inside 70, and mixer 58, the second nested tracking loop corresponds to LF Outside 68, DDFS Outside 72, and mixer 50, and the third tracking loop corresponds to baud LF 78, baud DDFS, and HB/VID 52.

(b) With reference to Fig. 5, in claim 12, the first high pass filter corresponds to Nyquist prefilter 62 and the second low pass filter corresponds to Nyquist prefilter 54.

© With reference to Fig. 7, in claim 118 the phase/frequency detector corresponds to baud PD 76, the means for determining whether the pilot is centered corresponds to baud LF 78 and summing node 80, and the oscillator circuit corresponds to baud NCO 82.

(d) With reference to Figs. 5 and 9, in claims 88, 96, and 100 the equivalent filter corresponds to bandpass 74, the decision directed carrier phase recovery loop corresponds to equalizer 24, LF Outside 68, Outside NCO 72, and mixer 50, and the phase detector corresponds to QAM PD 120 and VSB PD 122.

(e) With reference to Fig. 22, in claims 88, 96, and 100 the maximum likelihood sequence estimation circuit corresponds to slicer 310.

(f) With reference to Fig. 12, in claim 92 the real to imaginary signal converter corresponds to Hilbert transform 180 and the time compensation circuit corresponds to baud NCO 80 and HB/VID 52 and in claim 93-95 the Hilbert transform filter corresponds to Hilbert transform 180.

According to the present invention discussed in the specification. Fig. 1 shows a first embodiment of a dual mode QAM/VSB receiver; Fig. 4 shows a carrier recovery and baud loops of a second embodiment of a dual mode QAM/VSB receiver; Fig. 5 shows a square root Nyquest low pass filter (LPF); Fig. 7 shows a third embodiment of a dual mode QAM/VSB receiver; Fig. 9 shows a fourth embodiment of a dual mode QAM/VSB receiver; Fig. 12 shows the detailed embodiment of a VSB phase detector of Fig. 9; and Fig. 22 shows a decision feedback equalizer (DFE) including carrier and timing loop and symbol-by-symbol slicer.

In Figs. 1, 4, 5, 7, 9, 12, and 22 mentioned above, it is unclear what are the relationships among them. For example, Figs. 1, 4, 7, and 9 show four different embodiments, each embodiment has a different or special features.

With respect to clause (a), Fig. 1 shows an Acquisition/Tracking Loops (30) which inputs data from a Nyquest pre-filter (26) and outputs data to a first derotator (18), a second derotator (the derotators are shown as multipliers), and HB/VID (20). However, the outputs output from the block elements of Fig. 4 are input to multipliers (50 and 58) and a HB/VID (52), which appear to be not the same as shown in Fig. 1. Further, the block elements (20, 22, 28, and 26) shown in Fig. 1 have the same block elements (52,54, 56, and 62) shown in Fig. 4, but use different reference signs.

With respect to clause (b), claim 12 depends on claim 11 which depends on claim 10 recites the system further comprising an equivalent filter which is the combination of the first and the second filters recited in claim 12. However, as pointed out in clause (a) and shown in Fig. 4, the equivalent filter or the first and the second filters is (are) part of the third loop.

With respect to clause (c), it is unclear how is Fig. 7 related to Fig. 4. In Fig. 7, the block elements (76 and 78) are shown as exactly the same as the block elements shown in Fig. 4, but the block element (80) shown in Fig. 7 labels as a summation circuit and the block element (80) shown in Fig. 4 labels as a baud DDFS, and Fig. 7 also includes a baud NCO (82). Assuming the block elements show in Fig. 7 and Fig. 4 are the same, claim 18 recites the system further comprising a phase/frequency detector, determining means, and an oscillator. However, as pointed out in clause (a) and shown in Fig. 4, the phase/frequency detector, determining means, and the oscillator are part of the third loop.

With respect to clause (d), claim 88 recites an equivalent filter and an adaptive decision feedback equalizer. However, as pointed out in clause (a), clause (d), and shown in Fig. 4 or Fig. 9, the equivalent filter is part of the third loop and the adaptive decision feedback equalizer is part of the decision directed carrier phase recovery loop. Also see the discussion in clause (a) above for claims 96 and 101.

With respect to clause (e), it is unclear how are the relationships between Fig. 22 and Fig. 9.

With respect to clause (f), Fig. 12 shows the detailed embodiment of the VSB phase detector (122) of Fig. 9. However, it is unclear are all or part of the block elements shown in Fig. 12 are within the VSB phase detector. Both Fig. 9 and Fig. 12 show the summation circuit (117 or 172), the DFE (118 or 174), and the decision circuit (116 or 176), but with different reference signs. Further, claim 90 recites the square root Nyquest filter, coupled into the signal path in a position after the NTSC interference rejection filter. The NTSC(s) (28 or 56) is shown in Fig. 1 and Fig. 4 only and the square root Nyquest filter (22 or 54) is coupled into the signal path in a position before (not after) the NTSC interference rejection filter. Furthermore, claim 92 recites the system further comprising a real to imaginary signal converter and a time compensation circuit. However, as pointed out in clause (f) and shown in Figs. 9 and 12, the real to imaginary signal converter or the Hilber transform (180) is part of the phase detector or the adaptive decision feedback equalizer and the time compensation circuit is part of the third loop.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Young Tse whose telephone number is (703) 305-4736. The examiner can normally be reached on Monday through Friday from 9:30 AM to 5:30 PM. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Young T. Tse
Primary Examiner
August 19, 2001